HAILEY'S PROJECT

CUSTOMER 360 PROJECT

JANUARY, 2025

Table of Contents

Problem Statement

Background

The company's marketing team is planning to launch a revenue-boosting campaign in the next quarter of this year.

Objective

It is necessary to segment the company's current customer base into smaller, distinct groups to develop tailored strategies that optimize advertising costs while still nurturing customer relationships and achieving the targeted year-end sales goals.

Method

This report is therefore conducted to classify and analyze the current customer base using the RFM model metrics. The report will provide the marketing team with a comprehensive and detailed view of the company's customer base, enabling the implementation of appropriate and effective campaigns.

Theoretical Approach

a. Customer 360

Customer 360 is a concept in Customer Relationship Management (CRM) that represents a holistic view of a customer based on four key aspects: (1) Transaction data, (2) Behavioral data, (3) Interaction data, and (4) Demographics data.

The goal of Customer 360 is to collect data from various sources to create a complete customer profile, enabling businesses to gain deeper insights into customer behaviors, preferences, needs, and characteristics. This understanding allows businesses to market more effectively and deliver better services.

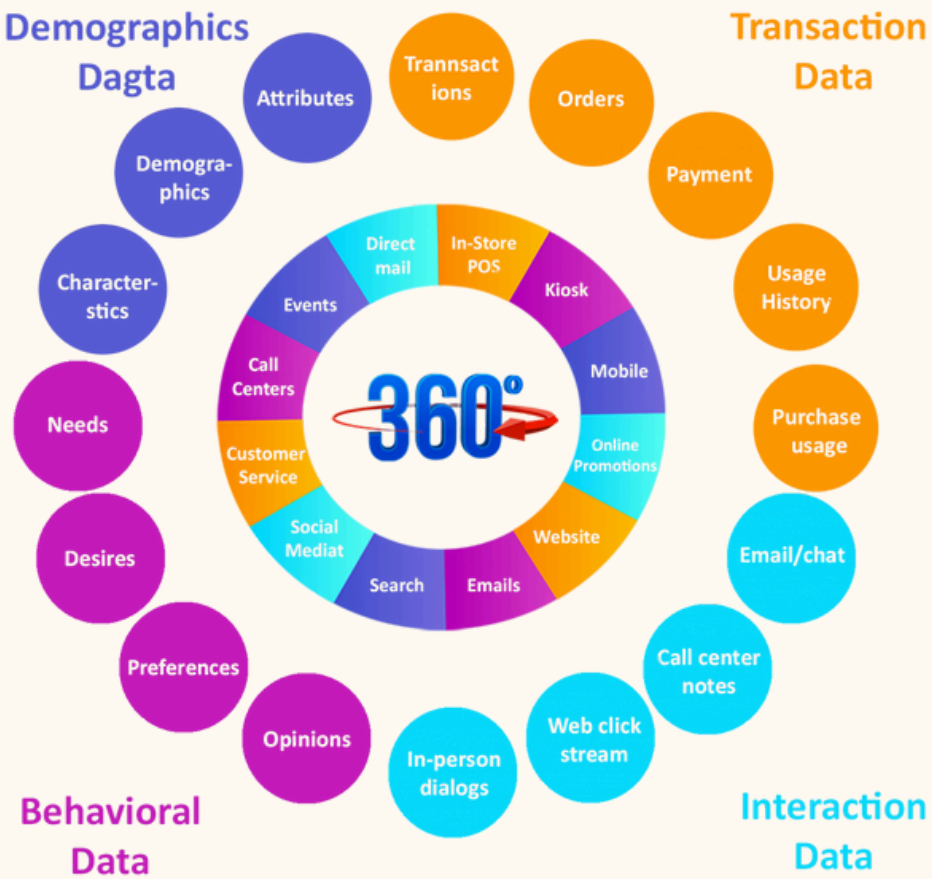


Figure 1. Customer 360 model

Theoretical Approach

b. RFM Model

RFM is a customer segmentation model based on Transaction Data that helps analyze customer behavior and assess their potential value. This enables businesses to develop more effective strategies for engaging with different customer groups.

As a part of the Customer 360 philosophy, the RFM model focuses on 3 key factors:

- **Recency**: The time elapsed since the customer's most recent purchase.
- **Frequency**: The number of purchases made by the customer within a specific timeframe.
- **Monetary**: Calculated based on the total spending or the average spending per transaction, depending on the business's analytical goals.

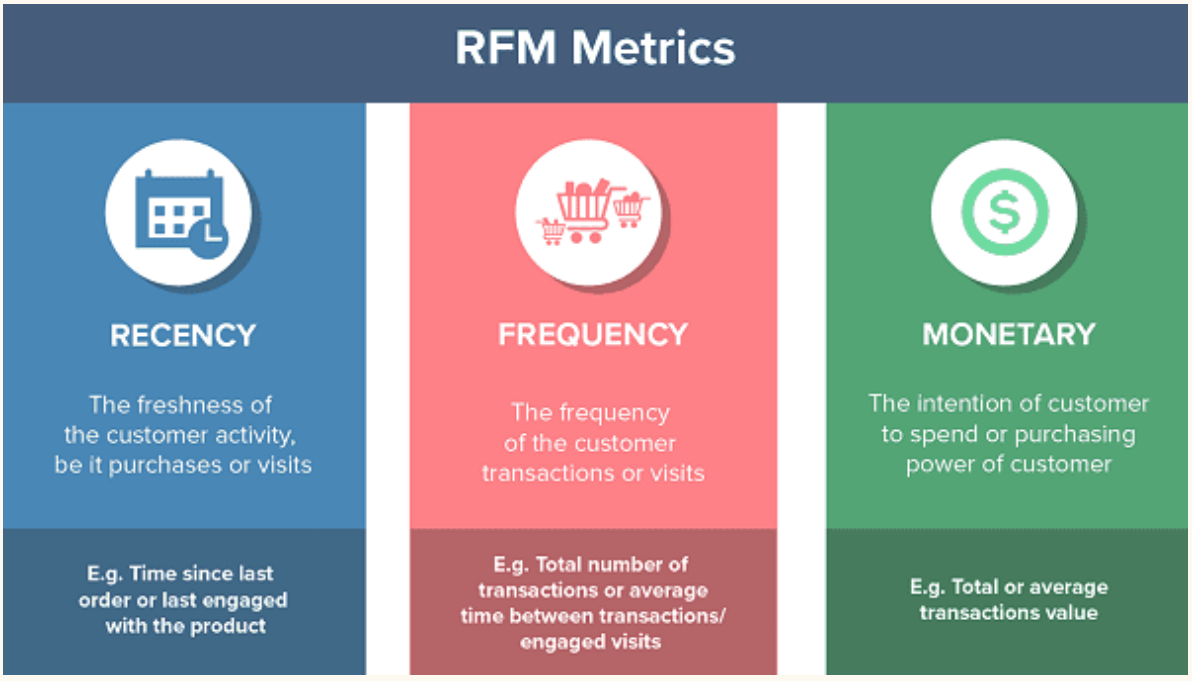


Figure 2. RFM model

Theoretical Approach

c. BCG Matrix

The BCG Matrix is a strategic tool used to analyze a company's product portfolio. It categorizes products or business units into four groups within four quadrants:

- **Stars**: Products with high market share in a fast-growing market.
- **Cash Cows**: Products with a large market share in a slow-growing market, providing stable revenue.
- **Question Marks**: Products with low market share in a fast-growing market, requiring investment to develop.
- **Dogs**: Products with low market share in a slow-growing market, often generating limited profit.

In this analysis, BCG Matrix will be applied to segment our customers based RFM Model introduced above.

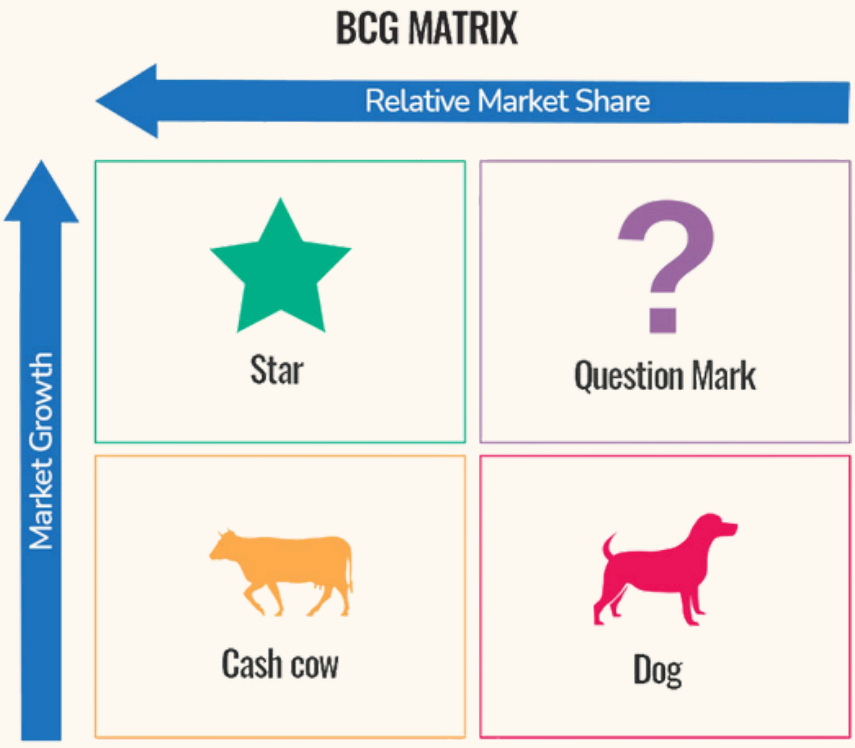


Figure 3. BCG matrix

Theoretical Approach

d. Inter Quartile

The Interquartile Range (IQR) represents the middle range of a dataset, containing the central 50% of the values. It is commonly used to measure dispersion in cases where the data distribution is skewed. When a dataset is asymmetrical, the median is used instead of the mean to represent the central tendency, making the IQR an appropriate measure for assessing variability.

The IQR is determined based on three key values:

- **Q1** (**Lower Quartile**)**:** The value at the 25th percentile of the dataset.
- **Q2** (**Median**): The central value that divides the data into two equal halves.
- **Q3** (**Upper Quartile**): The value at the 75th percentile of the dataset.

The formula for calculating the IQR is:

$$IQR = Q3 - Q1$$

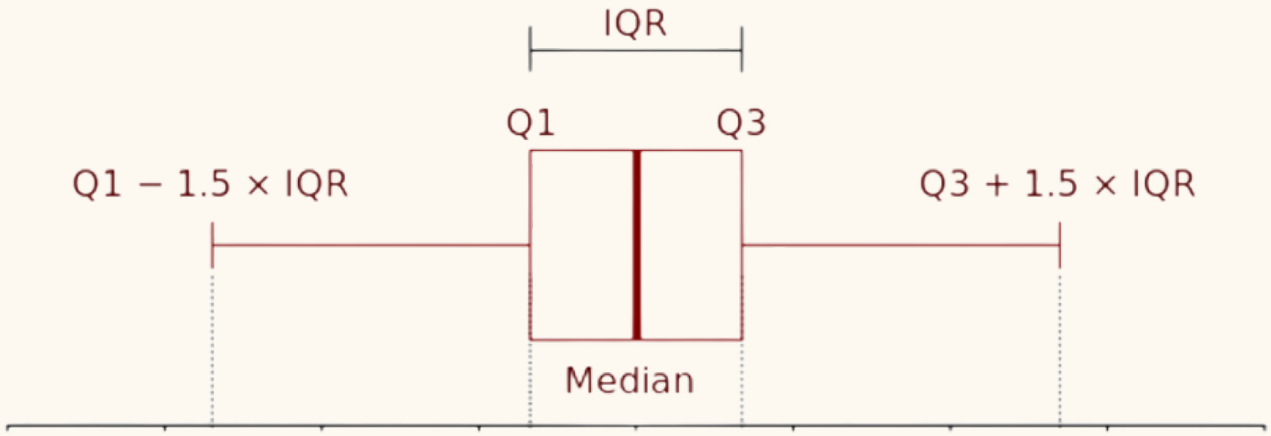


Figure 4. Interquartile range

Data Exploration

a. Dataset overview

*Table **customer_registered** having registration info of customers*

Column name	Data type	Description
ID	int	ID of each customer
Contract	varchar(50)	ID of each contract
LocationID	int	ID of location
BranchCode	int	Code of branch
Status	int	Code of status
created_date	date	The date contract was created
stopdate	date	The date contract was ended

*Table **customer_transaction** having transaction info of customers*

Column name	Data type	Description
TransactionID	int	ID of transaction
CustomerID	int	ID of each customer
Purchase_Date	date	The date of conducted transaction
GMV	int	Gross Merchandise Value *(total amount of sales)*

Data Exploration

b. Data cleaning

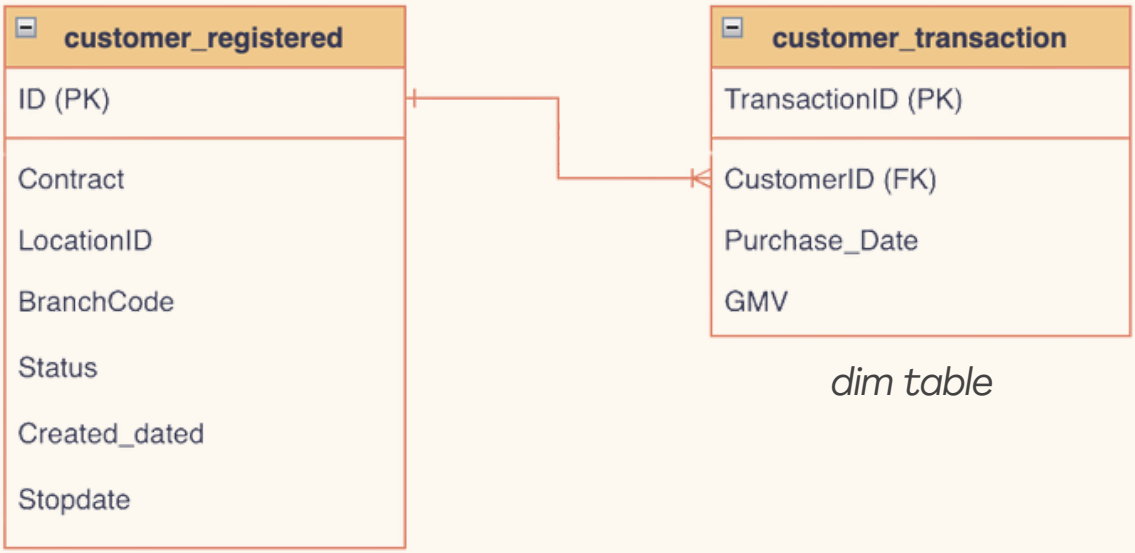
In this step, we remove values that may introduce noise into the dataset:

- Remove records where customerID = 0 as these may be system test accounts
- Remove records of customers whose created_date is NULL
- Remove transactions with no revenue generated (GMV = 0)
- Re-format the data type (start_date and stopdate are 'date' type
- Remove duplicates among rows

c. Data model

After wrangling data, we have the data model as below:

- *customer_registered*: 1,048,575 rows x 7 columns
- *customer_transaction*: 1,048,575 rows x 4 columns



fact table

dim table

Figure 5. Entity Relationship Diagram

RFM Marks

We use quartile to create 4 intervals to segment our customer based on R - F - M of RFM model. Each standard will be divided into 4 levels from 1-4.

During calculation, the indexes of frequency and monetary are divided by customer lifetime to ensure fairness in segmenting customers.

The formula for each category:

- **Recency** (days) = Now - Max(Purchase_Date)
- **Frequency** (times/ year) = Times of purchase/ Years since created date
- **Monetary** (VND) = Total amount of purchase/ Years since created date

After calculating and classifying those into 4 quartiles by IQR method, we got the table below:

Mark	1	2	3	4
Recency	>= 92 days	62 - 92 days	31 - 62 days	1 - 31 days
Frequency *(per year)*	0.1429 - 0.2	0.2 - 0.25	0.25 - 0.3333	0.3333 - 1.5
Monetary *(per year)*	0 - 17,500	17,500 - 21,250	21,250 - 26,250	26,250 - 189,394

Customer Segmentation

Besides, the RFM model will be the foundation for customer clustering based on their RFM quartile classification. There are 5 main groups which are compatible to BCG matrix as following:

Group	Segment	Description	RFM
Star	VIP Customer	Customers who have recently transacted, have high frequency and value of purchases	'344', '343', '334', '444', '443', '434', '433'
Cash cow	Loyal Customer	Customers who spend at an average - good level of expenditure but purchase frequently	'424', '243', '324', '244', '342', '242', '333', '332', '234', '341', '241', '441', '331', '231', '442', '431', '432', '423'
Question mark	Potential Customer	New customers who have recently transacted, spend averagely - quite a bit and have bought more than once	'222', '322', '223', '323', '224', '132', '233', '312', '232', '313', '214', '314', '421', '414', '422', '413'
	Churned Customer	Customers who have purchased many times with stable order value but have not returned to buy recently	'143', '142', '124', '131', '141','133', '144', '134'
Dog	Walk-in Customer	Customers who do not return to buy for a long time, with low frequency and value. Most of them like variety, buys products to experience and compare services.	Leftover

Data Visualization

CUSTOMER 360 PROJECT VISUALIZATION

customer_segment
- Churned customer
- Loyal customer
- Potential customer
- VIP customer
- Walk-in customer

114,081
Total customers

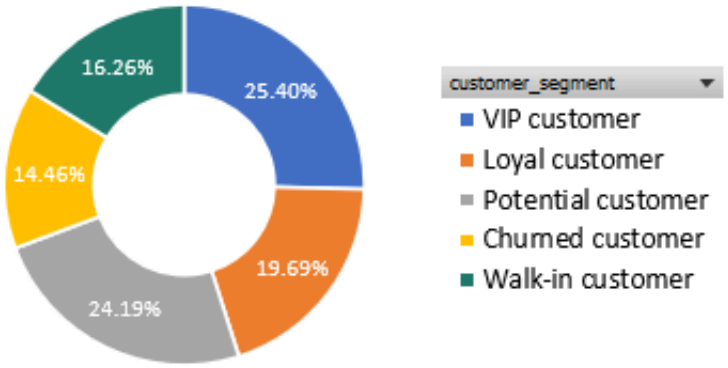
2,731,188,041 ₫
Average revenue per year

61.25
Average recency (days)

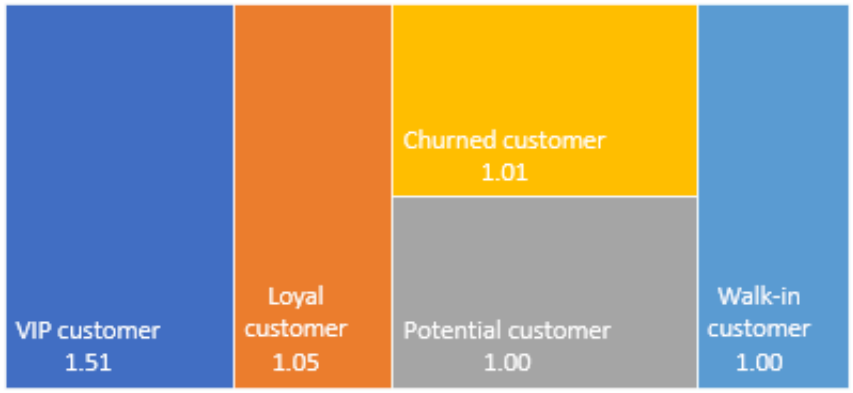
0.2750
Average frequency (times per year)

87,372 ₫
Money spend in each purchase

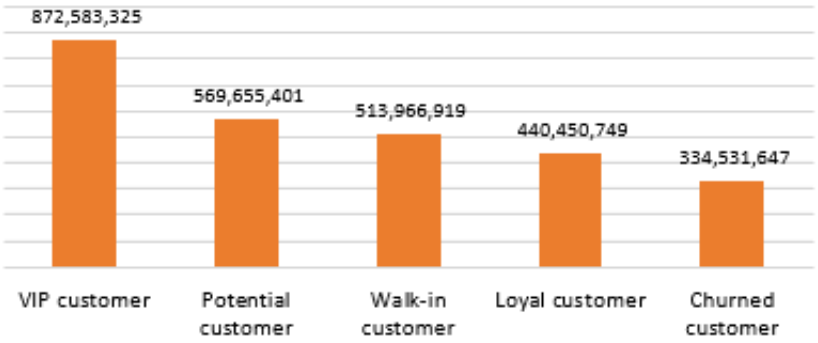
Total number of customers



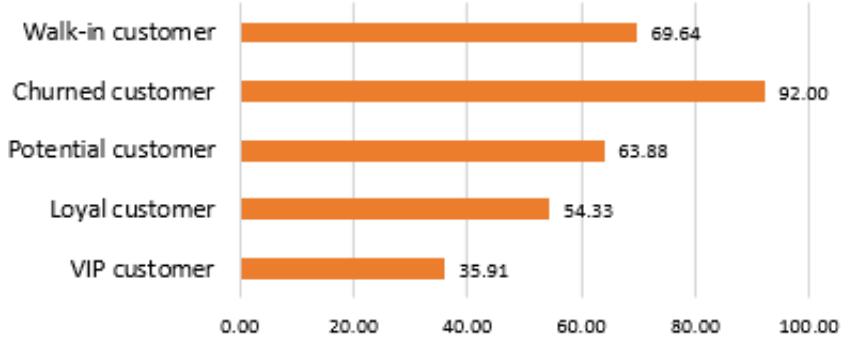
Average purchase times per customer



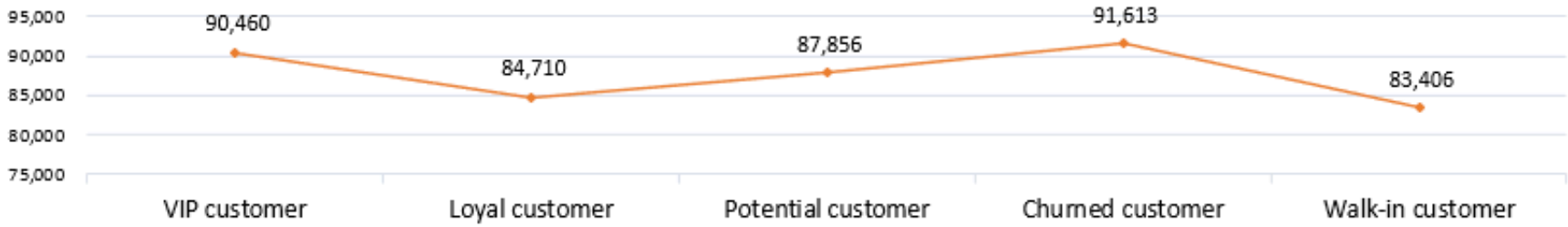
Revenue by customer segment



Average recency by segment (days)



Money spent per purchase of each segment



Data Analysis

Overview

The dataset comprises over 140K customers, with an average recency of 61 days, a usage frequency of 0.28 times/contract year, and an average order value of approximately 87K VND. Based on the RFM model and BCG matrix, customers were segmented into five groups - notably, dominated by VIP groups.

Each customer group

01 VIP Customer

The largest segment (25.4%), buying frequently (1.51 times/customer) with ***recent activity*** (35 days) and high spending (~90K VND/purchase), making them ***highly engaged and valuable***

02 Loyal Customer

Making up 20%, these customers ***purchase regularly*** (1.05 times/customer) but have lower average order value (~84K VND), indicating ***consistency but moderate revenue contribution***

03 Potential Customer

Over 24% of customers; though ***not frequent buyers,*** they contribute the ***second-highest revenue*** with ***decent order value*** (~88K VND), signaling strong future growth potential

04 Churned Customer

Around 14%, last purchased more than 3 months ago. Despite ***low activity***, they show the ***highest average order value*** (~91K VND), suggesting value retention if re-engaged effectively

05 Walk-in Customer

Single-purchase customers, inactive for over 2 months, with the ***lowest order value*** (~83K VND). Likely ***trial users*** with limited long-term engagement or conversion

Recommendations

1. VIP Customers – 'Exclusive Loyalty Boost'

Maintain strong engagement by offering *exclusive deals*, early access to new features, and tiered rewards. Reinforce their lifetime value through *personalized appreciation and premium services* to maximize retention and customer lifetime value.

2. Loyal Customers – 'Value Expansion Play'

Encourage higher spending through *personalized upsell and cross-sell offers*. Introduce *bundle promotions or loyalty milestones* to motivate more frequent and valuable purchases, gradually transitioning them into the VIP tier.

3. Potential Customers – 'Conversion Accelerator'

These customers show good volume but low frequency. Use *remarketing, personalized offers, and onboarding education* to increase repeat purchase behavior and convert them into loyal, long-term users.

4. Churned Customers – 'Win-Back Revival'

Target this high-potential group with *win-back campaigns* that leverage past purchase data. Offer *time-sensitive discounts* and highlight *improvements or new features* to reignite interest and restore engagement.

5. Walk-in Customers – 'First Impression Funnel'

Focus on creating a memorable first experience. Send *follow-up messages*, offer *second-order incentives*, and educate them about your value proposition to increase retention and move them beyond a one-time trial.

Conclusion

The Customer360 project delivered key insights by combining RFM segmentation with detailed transaction and customer profile analysis. It helped identify high-value, churned, and loyal customer segments, along with their average spending behaviors. These findings enable businesses to make data-driven decisions in marketing, customer retention, and resource allocation, ultimately enhancing customer experience and maximizing long-term profitability.

Appendix

GitHub project

HAILEY'S PROJECT

Thank You!

JANUARY, 2025